



**Parshvanath Charitable Trust's**  
**A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE**  
**(All Programs Accredited by NBA)**



**Department of Information Technology**

# **BeSafe: IoT Based Safety Band**

**Group No. 12**

<b>Ganesh Jambuka</b>	<b>18104044</b>
<b>Krishi Shah</b>	<b>19104009</b>
<b>Riddhi Shah</b>	<b>19204010</b>

**Guided by**  
**Prof. Anagha Aher**

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# Introduction

- Women Safety in India is widely discussed everywhere nowadays. It has now become a major issue, The crime rate is on the spike.
- Considering the situation, we have designed a system through which a woman will be able to receive administrative assistance in a very short time.
- We used a band as hardware and a mobile application as software, Hardware and software are connected to each other via Bluetooth.
- Our system helps the women when are involved in sexual harassment and is also made to help the victim when they come across an accident or any other crisis by tracking and sending their real time location to the police via SMS using GSM module and GPS module when the user not online.
- Our system helps them to store the coordinates of the place where the push button was pressed. All the data will be saved on firebase and will do data analysis and report it to police/government officials.

# Objectives

1. To achieve the location of the victim we will be using the GPS and GSM module which will help their family to locate them.
2. To achieve the current location it will be converted into a Google Map URL link and send through cross platform application to the concerned one.
3. To analyse the data/logs received from all the users so that it can be further used by police to identify the areas where emergencies had occurred with the help of bluetooth module which will send the data to the application and stored into the firebase.

# Problem Definition

- Problem Identified:

- The free movement of women are being hampered by sexual abuse. In the present world, sexual harassment is one of the major obstacles to women's empowerment.
- The person who is in unmovable situation due to an accident or alone who needs help.

- Solution Proposed:

- We proposed to make an app that helps the women to reach her family with single a click whenever she is in trouble.
- We are also planning to create a system so, whenever a person meets with an accident can contact the concerned authority by a single click hereby sending his/her location to the police.

# Technological Stack

## Hardware:

1. Arduino nano: approx. 300/- rupees
2. GSM/GPRS/Bluetooth 2g module : approx. 1900/- rupees
3. Push Button : 70/-rupees

## Software:

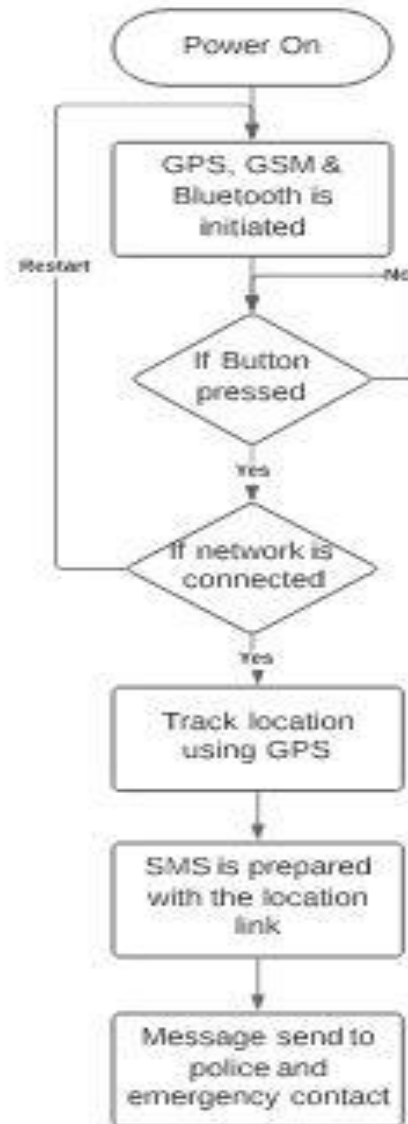
1. Firebase
2. Flutter
3. Android studio
4. Xcode
5. Arduino IDE

## Review Suggestions

- Verification if the button pressed(if the button is pressed twice then only the message will be send)
- Data analytics through data received at admin side(The data which is stored on Firebase will be converted into json file after that we will do data analysis on the same data)
- Government aspect(after converting it to a json file we will pass it on to the government officials so that they can improve the security if needed)
- Cross platforming(we are creating the platform independent application by using Flutter)

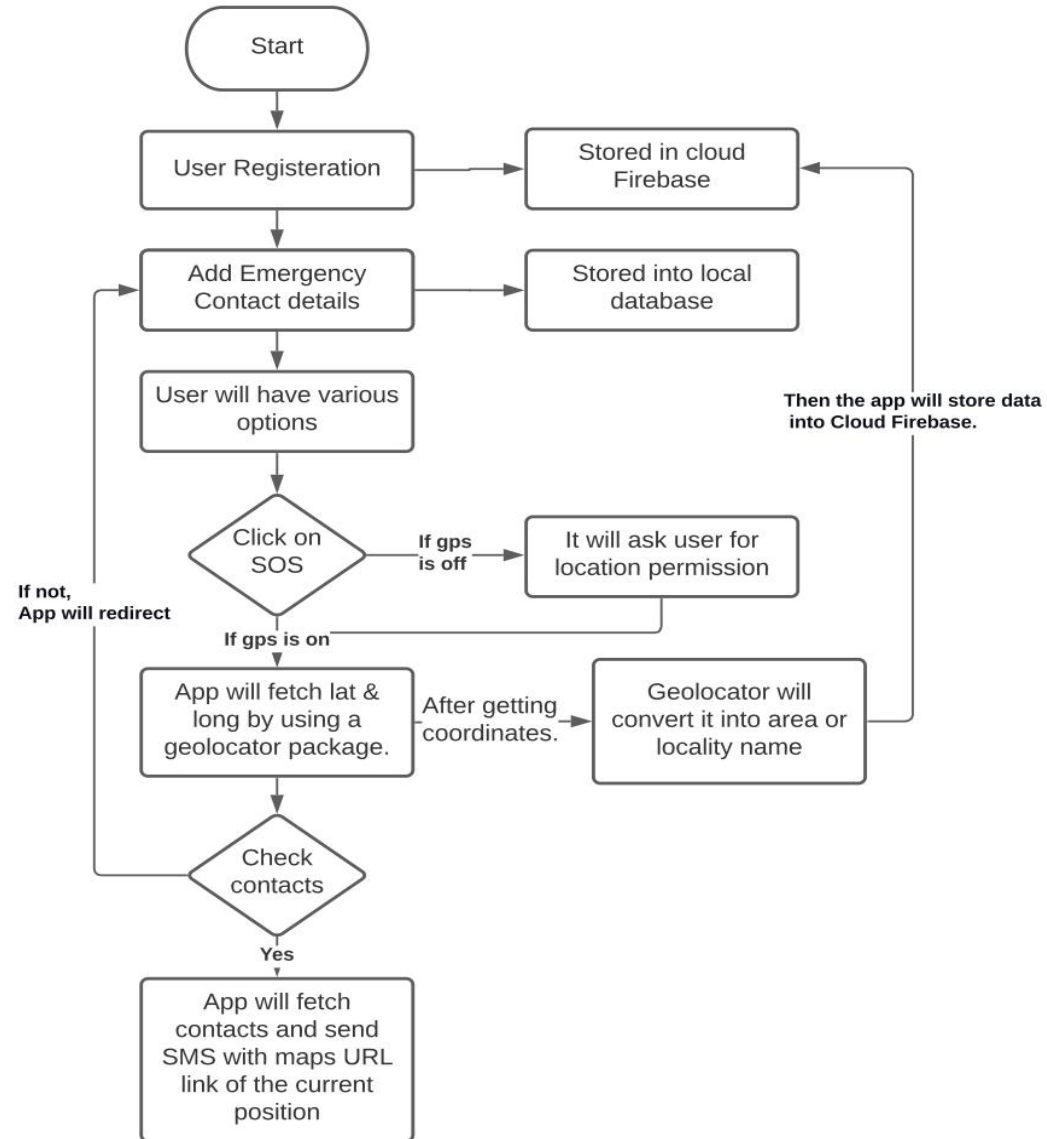
# Proposed System Architecture/Working

Block Diagram for Safety Band:





# Block Diagram for App:



## Implementation Status

1. Started implementing a cross-platform application using flutter.
2. The application can send multiple messages to the contacts which will be provided by the end-user.
3. It can be able to send a google map URL link via SMS.
4. And other features were also implemented suggested by teachers and project guide.
5. Data storage in cloud is implemented, we are able to fetch and save the data in JSON file.
6. Working on Data visualization.

## 8. Implementation

The screenshot shows the Firebase Authentication 'Users' page. On the left is a dark sidebar with the 'Build' section containing links to Authentication, Firestore Database, Realtime Database, Storage, Hosting, Functions, and Machine Learning. Below this is the 'Release & Monitor' section with links to Crashlytics, Performance, and Test Lab, followed by 'Extensions'. At the bottom of the sidebar, it says 'Spark Free \$0/month' and has an 'Upgrade' button. The main content area is titled 'Authentication' and has tabs for 'Users', 'Sign-in method', 'Templates', and 'Usage'. The 'Users' tab is active. It features a search bar with the placeholder 'Search by email address, phone number, or user UID', an 'Add user' button, a refresh icon, and a menu icon. Below the search bar is a table with the following data:

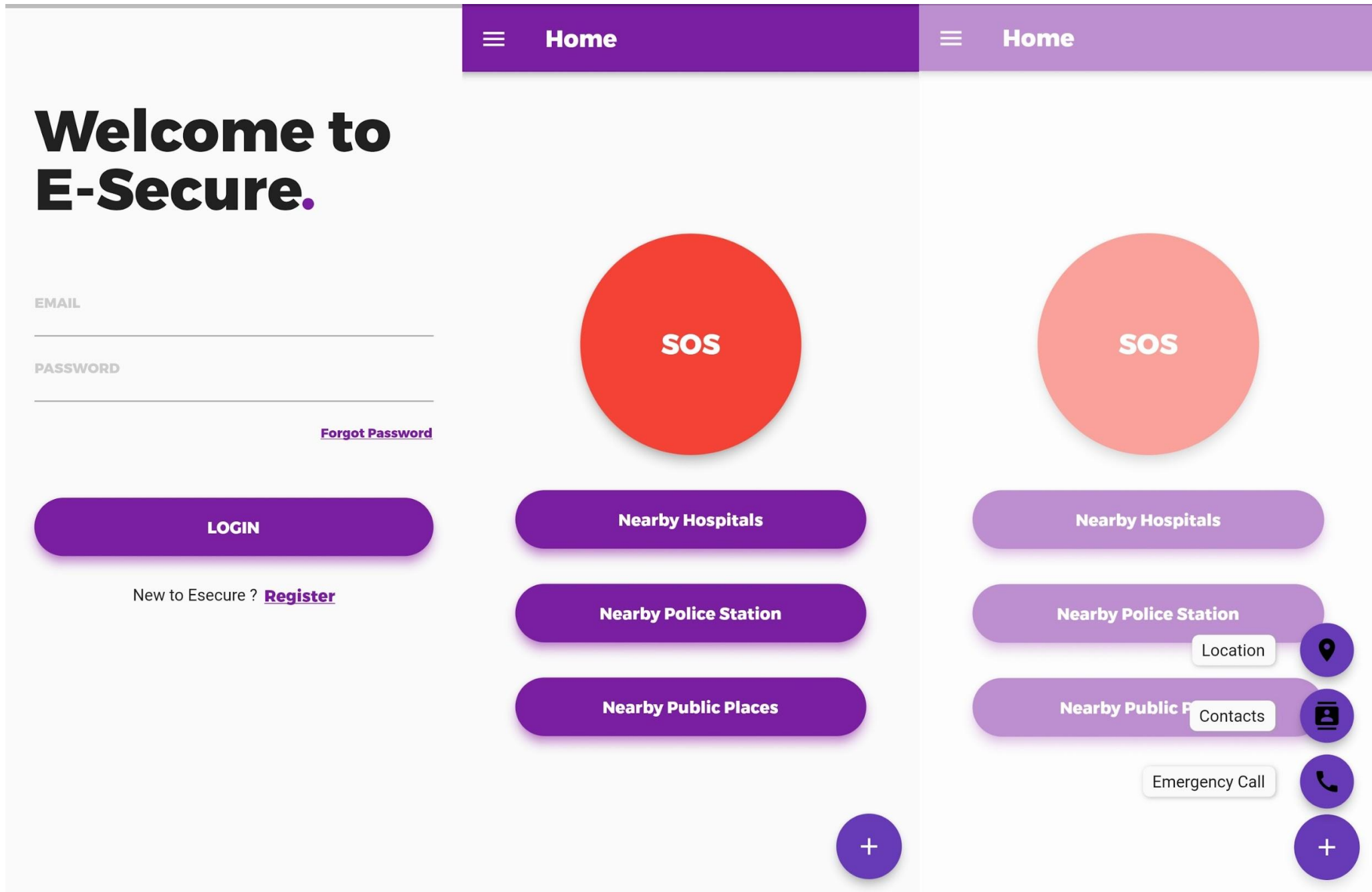
Identifier ↓	Providers	Created ↓	Signed In	User UID
test@gmail.com		Oct 24, 2021	Oct 25, 2021	DgkmPvuMFQebo5IGy6yTQ7mxLv...

At the bottom right of the table, it says 'Rows per page: 50' and '1 - 1 of 1' with navigation arrows.

**Fig 2: Firebase Authentication Page**

## **App Implementation**

After successful registration, the user will log in to the Application, then he will have different options to choose from i.e SOS, Nearby locations, Speed dial. If the user needs urgent help, he/she must press the SOS button then it will send the current location i.e google maps URL link as SMS to the respective contacts which were added by the user on the contacts page. If he/she wants to know the Nearby Hospitals, Police stations, or Public places they can simply press the buttons to get to the respective locations. The Speed Dial button offers various features like Emergency calls, Location, and Contacts. If he/she needs emergency help they can use the emergency call button which will call the respective person. If the user wishes to add, delete or modify the contacts, the user must press the contact button which will redirect him/her to the contact page.



**Fig 3: App UI**

## Status of Paper Draft & Targeted Conference

1. ICICV 2022 : 4th International Conference on Intelligent Communication Technologies and Virtual Mobile Networks
  - Submission Deadline Tuesday 20 Nov 2021
  - Conference Dates Feb 10, 2022 - Feb 11, 2022
  - <http://icicv.org/2022/>
1. 2<sup>nd</sup> International Conference on Pervasive Computing and Social Networking (ICPCSN 2022).
  - Submission Deadline Tuesday 20 Nov 2021
  - Conference Dates 3-4, March 2022
  - <http://icpcsi.in/2022/>
1. IEEE International Conference on Computing, Communication & Internet of Things Sri Sai Ram Engineering College Chennai, India, March 10-11, 2022
  - Abstract registration deadline December 1, 2021
  - Submission deadline December 20, 2021
  - <https://www.ieeeic3iot2022.org/ic3iot-2022>

Thank You...!!